THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 13

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte TOSHIYUKI KAERIYAMA

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Appeal No. 1997-1427
Application 08/483,777[1]

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ON BRIEF

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Before URYNOWICZ, HAIRSTON, and BARRY, Administrative Patent Judges.

HAIRSTON, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 8 through 14.

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[1] Application for patent filed June 7, 1995. According to appellant, this application is a division of Application 08/311,480, filed September 23, 1994.

The disclosed invention relates to a micromechanical device, and to a method of manufacturing the same.

Claim 8 is illustrative of the claimed invention, and it reads as follows:

8. A method for manufacturing a digital micromirror device, wherein said method comprises:

forming activation circuitry upon a semiconductor wafer, wherein said activation circuitry includes surfaces with a first bias and surfaces with a second bias;

depositing a pad film upon said activation circuitry, wherein said pad film acts as an insulator between said surfaces having said first bias and said surfaces having said second bias;

building a spacer layer upon said pad film;

cutting vias into said spacer layer;

laying a first metal layer upon said spacer layer such that said first metal fills said vias;

depositing a second metal layer upon said first metal layer and patterning and etching said second layer to form mirrors and hinges; and

removing said spacer layer such that said mirror is held at said second bias and is suspended over said activation circuitry by said hinges and when activated contacts said surfaces having said second bias.

The references relied on by the examiner are:

Hornbeck 5,083,857 Jan. 28, 1992

Webb 5,447,600
Sept. 5, 1995
(filed Mar. 21, 1994)

Claims 8 through 14 stand rejected under 35 U.S.C. § 103 as being unpatentable over Webb in view of Hornbeck.

Reference is made to the brief and the answer for the respective positions of the appellant and the examiner.

OPINION

We have carefully considered the entire record before us, and we will sustain the obviousness rejection as to claims 8 through 10 and 14, and we will reverse the obviousness rejection as to claims 11 through 13.

Appellant acknowledges (Brief, pages 4 and 5) that Webb discloses a micromechanical device in which the deflectable beam 20 and the address electrodes 16 are at different biases, and in which the deflectable beam 20 and the landing electrodes 14 are at the same bias. According to appellant, the pad film 26 only acts as an insulator between the landing electrodes 14 and the deflectable beam 20 because "[t]he pad film is etched away from the address electrodes [16]."

We agree with appellant that the pad film 26 has been removed from the address electrodes 16 in the first embodiment

(Figures 1 and 2) disclosed by Webb. On the other hand, the second embodiment (Figure 3c) clearly shows a pad film 26 on the landing electrodes 14 and on the address electrodes 16. Webb indicates that "FIG. 3C has protective layer 26 on both the landing electrodes 14 and address electrode 16" (column 5, lines 52 and 53). Thus, pad film 26 in the second embodiment (Figure 3c) "acts as an insulator between said surfaces having said first bias [address electrodes 16] and said surfaces having said second bias" [landing electrodes 14 and deflectable beam 20].

The examiner cited Hornbeck for a teaching of a multi-level deformable mirror device (Figure 7) that is formed via steps comprising building a spacer layer, and depositing a second metal layer upon the first metal layer to form mirrors and hinges as claimed (Answer, pages 4 and 5). Appellant argues (Brief, page 4) that "[t]he Hornbeck reference does not overcome the deficiencies of the Webb reference in the combination rejection." Such an argument is not a challenge to the propriety of combining the teachings of Hornbeck and Webb.

Inasmuch as Webb discloses a pad film over both the landing and the address electrodes, we will sustain the obviousness rejection of claims 8 and 14.

The obviousness rejection of claim 9 is sustained because Webb discloses the use of organic polymers for pad film 26 (column 2, line 58 through column 3, line 4).

The obviousness rejection of claim 10 is sustained because Webb discloses the use of a fluoropolymer for pad film 26 (column 2, lines 67 and 68).

The obviousness rejection of claims 11 through 13 is reversed because the applied references neither teach nor would they have suggested to one of ordinary skill in the art a pad film of inorganic material.

## DECISION

The decision of the examiner rejecting claims 8 through 14 under 35 U.S.C. § 103 is affirmed as to claims 8 through 10 and 14, and is reversed as to claims 11 through 13.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

## AFFIRMED-IN-PART

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|---|---|---|
| Stanley M. Urynowicz, Jr.<br>Administrative Patent Judge | ) | |
| Kenneth W. Hairston<br>Administrative Patent Judge | ) | BOARD OF PATENT APPEALS AND INTERFERENCES |
| Lance Leonard Barry<br>Administrative Patent Judge | ) | |

tdc

Charles A. Brill
Texas Instruments Incorporated
P.O. Box 655474, MS 3999
Dallas, TX 75265